Development and Measurement of Ultra-Thin Antennas for MUOS

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This presentation compares field test data for right-hand circularly polarized antennas operational in the MUOS band (i.e., from 300-320/360-380 MHz.) Of particular interest is the operational performance of a two prototype low-profile antenna as compared to antenna types such as a Trivec X-wing as well as other commercial antennas that are not low profile. To compare performance, we present the carrier to noise levels for each antenna as mounted in-situ on various platforms. In general, the antennas are presumed mounted on the roof of a platform pointing upwards. The satellites of interest may be as low as 75 degrees in elevation from the maximum of the antenna's radiation pattern.

In addition to the field test data, measurements for each antenna will be presented as taken in anechoic chambers as well at the performance of each antenna in realistic field tests. The presentation includes a discussion of the expected noise performance taking into consideration the front to back ratio of each antenna.

The presentation concludes with a discussion of the measured performance for all of the antennas studied from the standpoint of their in-situ performance as well as other factors such as the physical protrusion from the side (or top) of the platform. Comparison to commercially available equivalent antennas of higher profile will be given.